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# Maintenance Hints

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## Joachim Köppen Strasbourg 2010

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From the manufacturer's information, the hardware components of the telescope are basically maintenance-free. However, with any installation placed outdoors and subjected to the weather, and if it is used intensely, it is evident to deserve thorough visual inspection in regular intervals.

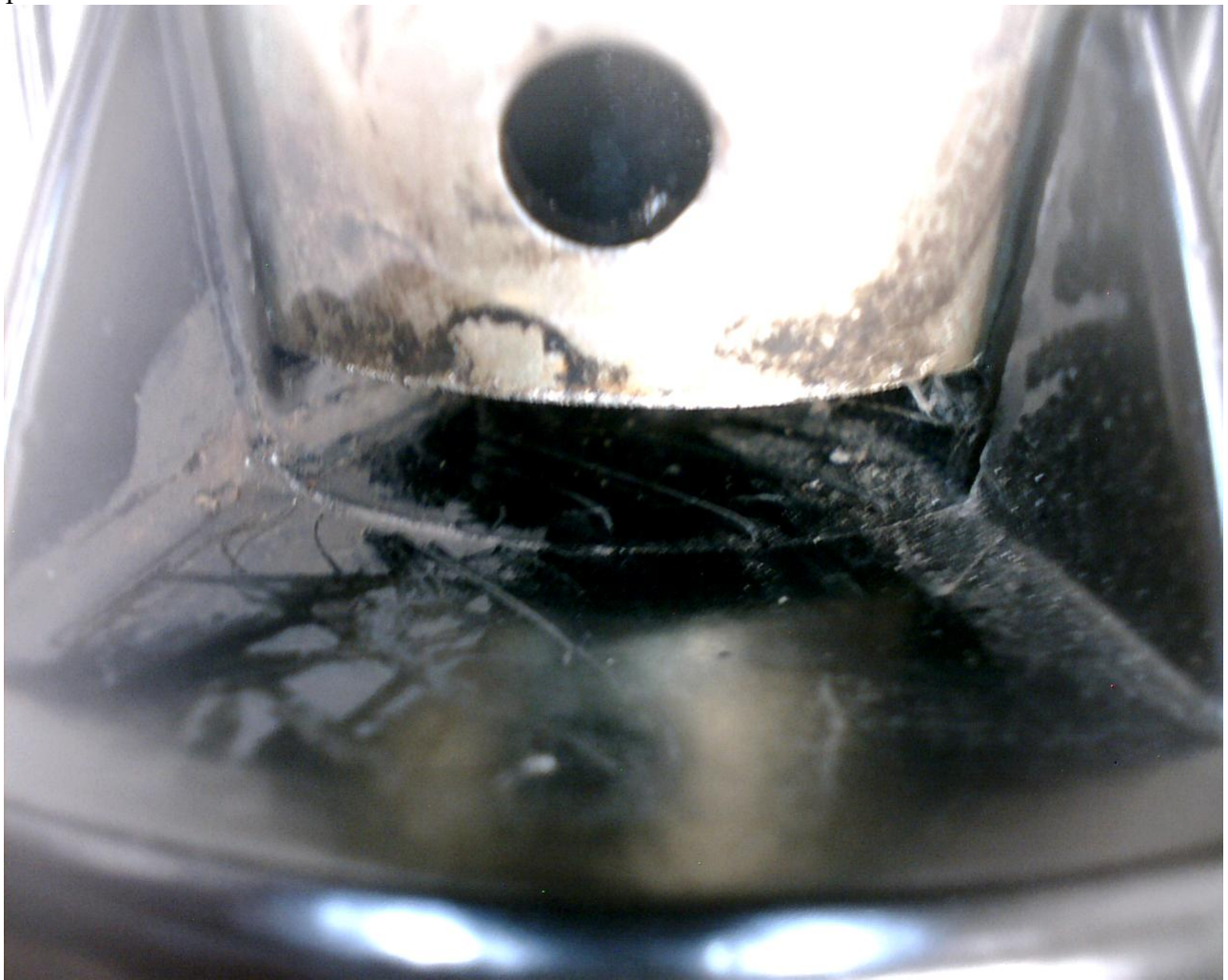
The azimuth motor is well protected by its housing, so in the two years of nearly continuous operation it has not given any hint of a problem. During an inspection this autumn I met only a group of shivering, dying wasps, which had somehow found their way in and huddled together for a bit of warmth ...

As I have been experimenting with band-pass filters, the focal assembly has received frequent visits. But as it does not contain any components subject to mechanical wear, and the lonely small spiders do not do any harm, this part does not need any attention.

However, the linear actuator ("pushrod") that does the elevation control did develop problems: Although it should be maintenance-free, it is exposed to the weather, and evidently rain water had penetrated its interior. Initially, it was noticed from the observational data that sometimes the elevation was not correct, and finally the telescope could not be moved in elevation. The inner tube revealed signs of corrosion

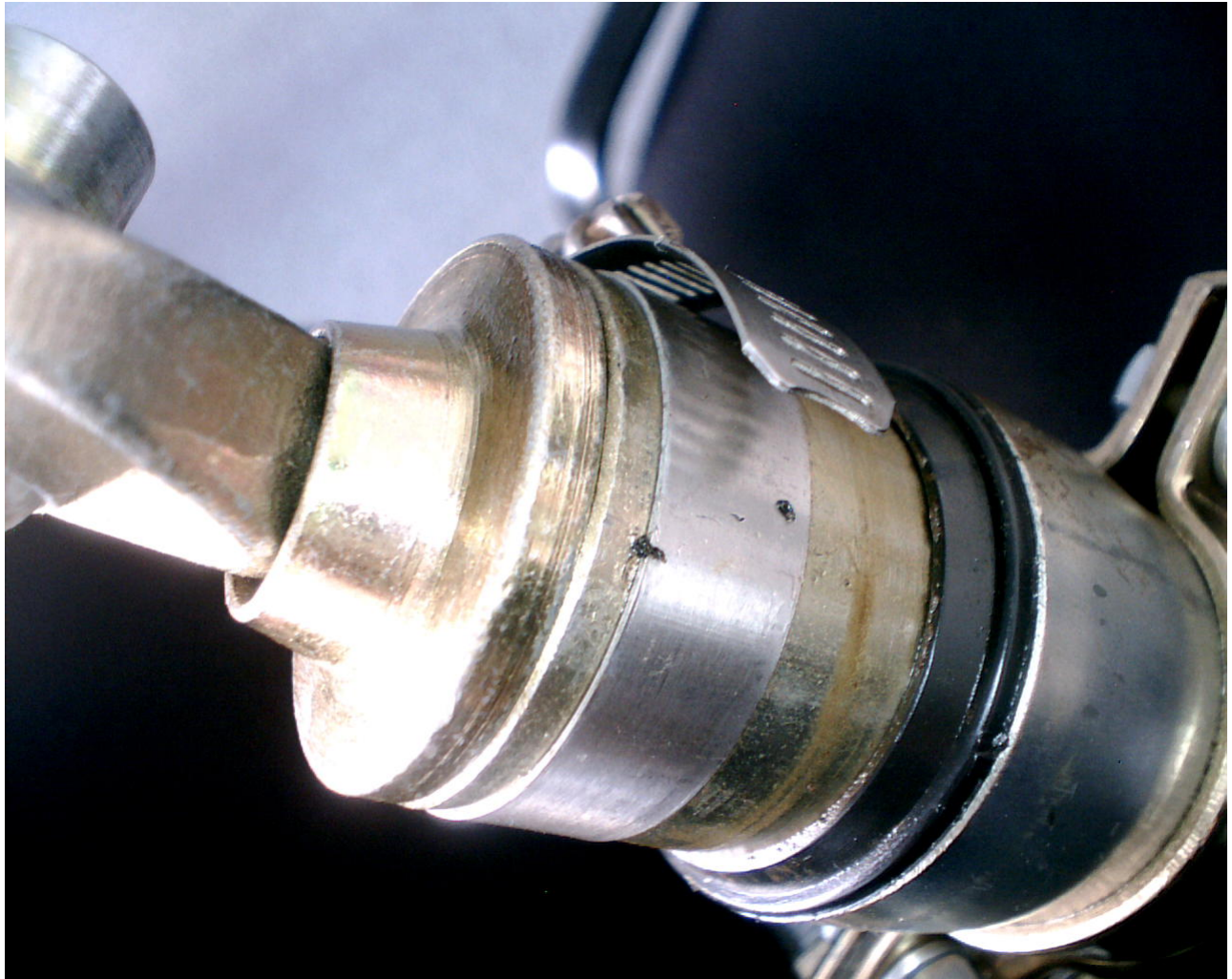


and it was noticed that at the bottom opening of the pushrod evidently some dirty-brown-black gooey had oozed or dripped out:



Partial disassembly and close inspection showed that the motor and the associated gear were in perfect order, but that the pushrod itself was quite firmly locked, so that the motor would stall immediately. Liberal application of a penetrating oil - like WD40 - and some mechanical effort eventually freed the threaded rod inside and brought it back to easy and smooth working. Letting the motor move the pushrod in and out many times restored the normal, smooth operation. Evidently, I'll keep a closer eye on this component!

The reason for this problem might be rain water seeping in through some gaps where the eye holding the mounting bolt is fixed to the inner tube of the pushrod:



The close-up view reveals rather substantial gaps. I noticed that any oil put here quickly vanishes ... evidently into the interior chamber of the inner tube.



It seems most likely that through these gaps rain water could penetrate into that inner chamber which contains the threaded driving rod. It washed out some of the lubricant - the blackish gooey - and caused the thread to get stuck. Eventually, I'll find some way to fill up the gaps ...

Here is a report about repair work done in 2013 of the pushrod and the motor housing:

[Report on Repair in 2013 \(1.2 MB\)](#)

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